

AUGUST 2002

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# **Draft Environmental Assessment**

## **MAINTENANCE DREDGING GRAVING DOCK TURNING BASIN AND BERTHING AREAS 15 & 16 SAN JUAN HARBOR , PUERTO RICO**



U.S. Army Corps  
of Engineers  
JACKSONVILLE  
DISTRICT

MAINTENANCE DREDGING  
GRAVING DOCK TURNING BASIN AND  
BERTHING AREAS 15 & 16  
SAN JUAN HARBOR, PUERTO RICO

PRELIMINARY FINDING OF NO SIGNIFICANT IMPACT

I have reviewed the Environmental Assessment (EA) for the proposed action. This Finding incorporates by reference all discussions and conclusions contained in the Environmental Assessment enclosed hereto. Based on information analyzed in the EA, reflecting pertinent information obtained from agencies having jurisdiction by law and/or special expertise, I conclude that the proposed action will not significantly impact the quality of the human environment and does not require an Environmental Impact Statement. Reasons for this conclusion are in summary:

a. The proposed action includes maintenance dredging of the Graving Dock Turning Basin and Berthing Areas 15 & 16 in San Juan Harbor, Puerto Rico. The dredged material will be placed in one or two artificial depressions located in the San José Lagoon.

b. The proposed action would not jeopardize the continued existence of any threatened or endangered species or adversely impact any designated "critical habitat".

c. Measures to eliminate, reduce, or avoid potential adverse impacts to fish and wildlife resources would be implemented.

d. Puerto Rico water quality standards will be met. A water quality certification will be obtained from the Puerto Rico Environmental Quality Board.

e. The proposed project will be consistent with the Puerto Rico Coastal Zone Management Program.

f. No known significant historic resources will be directly affected by this project. Coordination with the State Historic Preservation Office (SHPO) will determine the project's effect on historic properties.

g. Economic benefits will be accrued.

h. Measures to eliminate, reduce, or avoid potential impacts to environmental resources include the following: (1) The standard manatee protection measures would be followed for all water based activities, (2) The pipeline would be aligned in a manner to avoid adversely affecting mangroves.

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James G. May  
Colonel, U.S. Army  
District Engineer

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Date

**DRAFT  
ENVIRONMENTAL ASSESSMENT  
ON  
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GRAVING DOCK TURNING BASIN AND  
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ON  
MAINTENANCE DREDGING  
GRAVING DOCK TURNING BASIN AND  
BERTHING AREAS 15 & 16  
SAN JUAN HARBOR, PUERTO RICO**

**1 PROJECT PURPOSE AND NEED**

**1.1 PROJECT AUTHORITY.**

Work is authorized under PL-99-662, November 1986 and re-authorized in 1996 under PL-104-303.

**1.2 PROJECT LOCATION.**

San Juan Harbor is located on the northeast coast of the island of Puerto Rico. The Graving Dock Turning Basin and Berths 15 and 16 are located northeast of the Graving Dock Channel (Figure 1, vicinity map and plan view).

**1.3 PROJECT NEED OR OPPORTUNITY.**

Periodic dredging is required to maintain adequate navigation depths. Surveys indicate sufficient shoaling to justify maintenance.

**1.4 RELATED ENVIRONMENTAL DOCUMENTS.**

In response to a request from the Puerto Rico government, studies of the authorized San Juan Harbor Federal Navigation project were completed and improvements were proposed in a Survey Report dated 1974. A Final Environmental Impact Statement (FEIS) was filed in 1976. A Phase I General Design Memorandum and S-EIS were prepared in 1982. An Environmental Assessment was prepared in 1994 for project changes to the Phase I GDM design.

**1.5 SCOPING AND ISSUES.**

The following issues were identified during scoping and by the preparers of this Environmental Assessment to be relevant to the proposed action and appropriate for detailed evaluation: (1) water quality degradation, especially in regards to turbidity and sediment contaminants; (2) potential damage to Essential Fish Habitat, particularly to mangroves and soft bottom; and (3) deleterious effect to benthos.





## **1.6 PERMITS, LICENSES, AND ENTITLEMENTS.**

The work will require authorization from the Commonwealth of Puerto Rico's Environmental Quality Board (Water Quality Certificate). The project will also require determination of consistency with the Puerto Rico Coastal Management Program and concurrence of the Puerto Rico Planning Board with this determination. Refer also to section 4.35, Compliance with Environmental Requirements.

## **2 ALTERNATIVES**

The alternatives section is the heart of this EA. This section describes in detail the no-action alternative, the proposed action, and other reasonable alternatives that were studied in detail. Then based on the information and analysis presented in the sections on the Affected Environment and the Probable Impacts, this section presents the beneficial and adverse environmental effects of all alternatives in comparative form, providing a clear basis for choice among the options for the decision maker and the public.

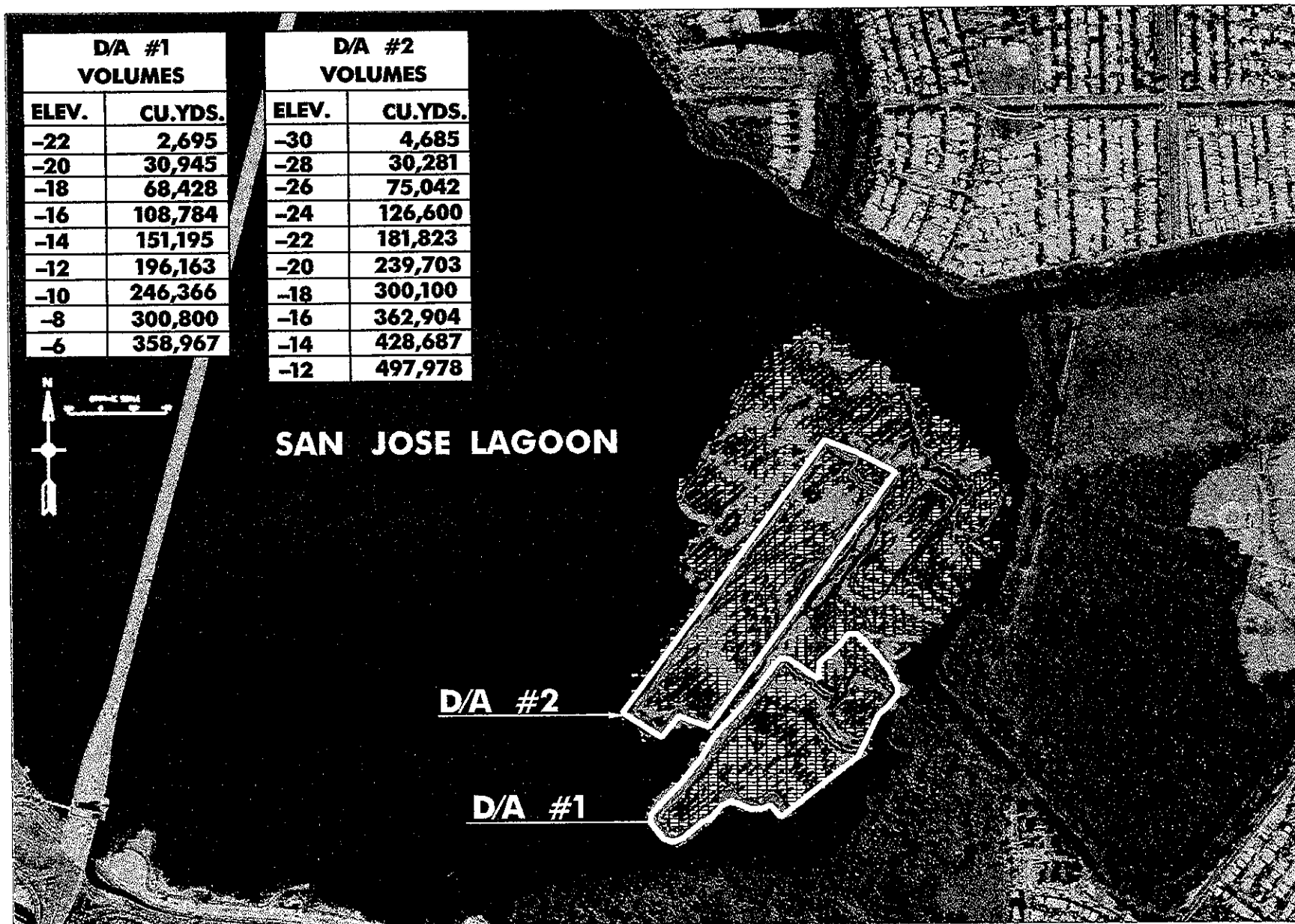
### **2.1 DESCRIPTION OF ALTERNATIVES.**

#### **2.1.1 DREDGING ALTERNATIVE**

The proposed dredging alternative includes maintenance dredging and deepening the Graving Dock Turning Basin and adjacent Berthing Areas 15 and 16, to a depth of 33 feet (mlw) plus 1 foot allowable overdepth. The maintenance dredging and deepening would include the excavation of approximately 300,000 cubic yards of material from an approximately 50-acre area. The material to be removed consists of sandy, clayey silts with traces of shell. Bioassay testing results indicate the sediments within the turning basin and berthing area show traces of contaminants. Refer to sections 3.8 and 4.12 for more information concerning these sediments. The dredging method would be hydraulic excavation and pipeline pumping, via the Martín Peña Channel, of all dredged material into one or more existing artificial depressions within the San José Lagoon. A maximum 50 ft. wide corridor would be needed for placement of the floating pipeline through the Martín Peña Channel. The precise route along which the pipeline and booster pumps would be located has not been determined at this stage.

#### **2.1.2 SUBAQUEOUS CONTAINED AQUATIC DISPOSAL (CAD) SITE**

This alternative includes placing the 300,000 cubic yards of dredged material into an artificial depression in the San José Lagoon bottom. There are two deep depressions at the eastern end of the San José Lagoon which have been evaluated for conversion to a subaqueous contained aquatic disposal (CAD) site. These sites are designated as Disposal Area #1 and Disposal Area #2 (Figure 2). Based on studies performed by the U.S. Army Corps of Engineers Waterways Experiment Station (WES), these depressions have sufficient capacity for placement of the material and cap if filling operations and rates are controlled to allow for adequate sedimentation and consolidation to occur (see Appendix D, CAD Design). Clean material from maintenance dredging in San Juan Harbor would be used to cap the CAD pit. A minimum cap thickness of 1.75 feet would be used.



## **SAN JUAN HARBOR O&M DISPOSAL AREAS**

FIGURE 2

### **2.1.3 NO ACTION ALTERNATIVE (STATUS QUO)**

With this alternative, no maintenance dredging, deepening or disposal operations would occur. Sediment would continue to accumulate making the project eventually too shallow to be safely navigated. Additionally, the contaminated material would remain in the San Juan Harbor.

## **2.2 PREFERRED ALTERNATIVE(S)**

The preferred alternative is to dredge and deepen the Graving Dock Turning Basin and adjacent Berths, 15 and 16. The material would be disposed in an artificial depression located in the San José Lagoon.

## **2.3 ALTERNATIVES ELIMINATED FROM DETAILED EVALUATION**

In the past, maintenance dredged material from the San Juan Harbor has been placed in the Ocean Dredged Material Disposal Site (ODMDS). This option was not considered due to presence and level of contaminants. Upland disposal was not regarded feasible due to the high cost and general unavailability of suitable nearby uplands.

## **2.4 COMPARISON OF ALTERNATIVES**

Table 1 lists alternatives considered and summarizes the major features and consequences of the proposed action and alternatives. See section 4.0 Environmental Effects for a more detailed discussion of impacts of alternatives.

Table 1: Summary of Direct and Indirect Impacts

ALTERNATIVE ENVIRONMENTAL FACTOR	Dredging and Pipeline Placement	San José Lagoon Artificial Depressions (CAD Sites)	No Action Status Quo
PROTECTED SPECIES	No impact with implementation of standard protection measures for manatees.	No impact expected.	No impact.
HARD GROUND	No impact expected.	No impact expected.	No impact.
FISH AND WILDLIFE RESOURCES	No significant adverse impacts are anticipated.	No significant adverse impacts are anticipated.	No impact.
VEGETATION	No SAV would be impacted by project activities. Providing for a maximum 50-ft. pipeline corridor may have an impact on mangroves along the Martín Peña Channel.	No SAV would be impacted by project activities.	No impact.
WATER QUALITY	Temp. increase in turbidity and suspended sediments at dredging site.	Short-term degradation of water quality due to turbidity.	No impact.
HISTORIC PROPERTIES	No impact expected.	No impact expected.	No impact.
RECREATION	No impact expected.	No impact expected.	No impact.

ALTERNATIVE ENVIRONMENTAL FACTOR	Dredging and Pipeline Placement	San José Lagoon Artificial Depressions (CAD Sites)	No Action Status Quo
AESTHETICS	Minor short-term impact due to construction activities.	Minor short-term impact due to construction activities.	No impact.
NAVIGATION	Improve navigation safety.	No impacts expected.	Navigation safety would not be improved.
ECONOMICS	Increase in economics for the port area.	No impact.	Potential decrease in economics for the port area.
ESSENTIAL FISH HABITAT	No significant impact expected.	No significant impact expected.	No impact.

### **3 AFFECTED ENVIRONMENT**

The Affected Environment section succinctly describes the existing environmental resources of the areas that would be affected if any of the alternatives were implemented. This section describes only those environmental resources that are relevant to the decision to be made. It does not describe the entire existing environment, but only those environmental resources that would affect or that would be affected by the alternatives if they were implemented. This section, in conjunction with the description of the "no-action" alternative forms the base line conditions for determining the environmental impacts of the proposed action and reasonable alternatives.

#### **3.1 GENERAL ENVIRONMENTAL SETTING**

Federal Navigation projects have been authorized in San Juan Harbor since 1917. Over the years, deepening and improving the existing channels has taken place to accommodate newer and larger ships using the port. Marine traffic in the project area consists of cruise ships, commercial, pleasure, and small recreational vessels.

The San José Lagoon is located northeast of the San Juan Harbor. The lagoon is divided into two segments, the Los Corozos Lagoon to the northwest and San José Lagoon to the southeast. These waterbodies have a surface area of approximately 1,129 acres. The two lagoons have no direct outlets to the Atlantic Ocean. Most of the shoreline of the San José Lagoon is forested with mangroves, but the western and southwestern banks have been filled for the construction of housing. Water exchange between the San Juan Bay and San José Lagoon is limited by sedimentation and the accumulation of debris in the Martín Peña Channel (SJBEP, 2000). The Martín Peña Channel is approximately 3.75 miles in length and ranges in width from 6-feet to over 400-feet with an average depth of 4-feet.

#### **3.2 VEGETATION**

##### **3.2.1 SUBMERGED VEGETATION**

Submerged aquatic vegetation (SAV) beds consisting of algae and seagrasses are documented to occur in San Juan Bay. However, benthic maps from NOAA's website at <http://sag1.nos.noaa.gov/Website/PuertoRico/viewer.htm>, indicate that there are no SAV communities present in the proposed dredging and disposal areas.

##### **3.2.2 MANGROVE STANDS**

Although once mangrove-lined along its entire southern shoreline, San Juan Bay retains little mangrove coverage due to filling or dredging for maritime commerce (USACE, 1994). There are no mangrove stands in or immediately adjacent to the areas proposed for dredging. A narrow strip of mangroves still exists along the Martín Peña Channel. Mangrove stands are also present along the shoreline of the San José Lagoon.

### **3.3 THREATENED AND ENDANGERED SPECIES**

Brown pelicans may occasionally be observed resting on taller mangrove trees lining the western San José Lagoon. Manatees may be encountered in the San Juan Harbor.

### **3.4 HARDGROUNDS**

Coral communities and related habitats are found within the San Juan Bay outlet. However, hardgrounds are not expected to be found within or adjacent to the dredging and disposal areas.

### **3.5 FISH AND WILDLIFE RESOURCES**

San Juan Bay has lost most of its wildlife habitat such as mudflats, marshes, and mangroves to development. However, isolated mudflats and narrow strips of mangroves still exist along the Martín Peña Channel.

### **3.6 ESSENTIAL FISH HABITAT**

Mangroves and soft bottom coastal lagoons may be present in the project area and are categories of EFH. Maps from the San Juan Bay Estuary Program and NOAA's website at <http://sag1.nos.noaa.gov/Website/PuertoRico/viewer.htm>, indicate that there are no other benthic communities present in the proposed dredging and disposal areas.

### **3.7 WATER QUALITY**

Water quality would not be adversely impacted by this project, and Commonwealth water quality standards would be met. Short-term increases in turbidity are expected during the dredging operations phase of the project. However, the system would re-establish itself as a productive part of the overall ecosystem. No long-term surface water quality problems would result.

### **3.8 HAZARDOUS, TOXIC AND RADIOACTIVE WASTE**

During the period May 4-16, 1999, 37 sample stations in the San Juan Harbor, Puerto Rico, were sampled as part of the 1999 Evaluation of Dredged Material for Ocean Disposal. This evaluation considered potential material from maintenance dredging and from harbor expansion and was reported to the U.S. Army Corps of Engineering in the form of a Final Report For San Juan Harbor, Puerto Rico 1999 Evaluation Of Dredged Material For Ocean Disposal, Delivery Order 0031, Contract DACW17-97-D-0001, October 1999 Volumes I and II. Submitted by PPB Environmental Laboratories, Inc. 6821 S. W. Archer Road, Gainesville, FL 32608.



Analytical results for sediments shows that trace metal results were consistent with earlier studies. Heavy metals were present in the sediments at low to moderate levels. Pesticides and PCBs were either below detection or present at low levels.

Analytical results for elutriates shows trace metals were all either below detection or present at low levels. These results indicate that those trace metals present in the sediments are rather tightly bound to the sediment particles and do not readily migrate into the water column when subjected to mechanical agitation and mixing. There was no movement of pesticides or PCBs from the sediment into the water column, as all elutriates were below detection for all pesticides and PCBs.

Bioaccumulation tests with clams and worms indicated that trace metals did not accumulate in the tissues either. Mercury and silver were below detectable levels. Arsenic, cadmium, chromium, copper, and lead, were either below detection or found at low levels. Statistical analysis showed that no site had significantly higher arsenic, cadmium, chromium, copper, lead, mercury, silver, or zinc than the reference site. Similarly, pesticides and PCBs did not show elevated levels.

Food and Drug Administration (FDA) action levels for metals, pesticides, and PCBs in fish and shellfish for human food range from 0.3 to 1.0 ppm, wet weight basis. Even the highest levels found in the organisms exposed to sediment from San Juan Harbor are 1 to 2 orders of magnitude below the FDA levels. The overall purpose of the proposed project is to prevent and minimize present and future impacts to humans, wildlife and the aquatic environment.

### **3.9 AIR QUALITY**

No atmospheric emissions of controlled substances would occur as a result of project activities, except those normally generated from engines used by dredge, towboat and other machinery. All applicable regulations of the EQB would be complied with.

### **3.10 NOISE**

Ambient noise around the project area is typical to that experienced in harbor environments. The immediate environment surrounding the Martín Peña Channel is moderately noisy. Residences are spaced closely, and traffic on nearby roads includes heavy tractor-trailers, city buses, and commercial trucks (USACE, 2001).

### **3.11 AESTHETIC RESOURCES**

San Juan Bay, San José Lagoon, as well as the interconnecting Martín Peña Channel, are all part of the San Juan Bay Estuary system. However, visual aesthetic resources found at San Juan Harbor are not of significant value. Commercial harbor activities are the main use of the harbor.

### **3.12 RECREATION RESOURCES**

Within the San José Lagoon, recreational fishing is enjoyed by many sportfishers. San José Lagoon is part of the San Juan Bay Estuary Program.

### **3.13 NAVIGATION**

San Juan Harbor is the 17<sup>th</sup> largest port facility in the world and the most important port in Puerto Rico. Federal Navigation projects have been authorized in San Juan Harbor since 1917. Over the years, deepening and improving the existing channels has taken place to accommodate newer and larger ships using the port. Marine traffic in the project area consists of cruise ships, commercial, pleasure, and small recreational vessels.

### **3.14 HISTORIC PROPERTIES**

This project will be fully coordinated with the Puerto Rico State Historic Preservation Officer (SHPO). If required, cultural resource investigations will be conducted to identify and evaluate historic properties within the project area.

## **4 ENVIRONMENTAL EFFECTS**

This section is the scientific and analytic basis for the comparisons of the alternatives. See table 1 in section 2.0 Alternatives, for summary of impacts. The following includes anticipated changes to the existing environment including direct, indirect, and cumulative effects.

### **4.1 GENERAL ENVIRONMENTAL EFFECTS**

Dredging and deepening the Graving Dock Turning Basin and adjacent Berths 15 & 16, would improve navigation safety for vessels. Impacts to the existing environment due to construction activities are considered minimal.

### **4.2 VEGETATION**

#### **4.2.1 SUBMERGED VEGETATION**

Impacts to bottom vegetation are not expected by project construction activities.

#### **4.2.2 MANGROVES**

Providing a 50-foot pipeline corridor through the Martín Peña Channel may impact fringing mangroves. However impacts should be minor since the pipeline would be aligned in a manner to avoid adversely affecting mangroves.

### **4.3 THREATENED AND ENDANGERED SPECIES**

Dredging and disposal would not adversely affect species under the jurisdiction of the USFWS or NMFS. Protective measures would be taken during dredging activities to ensure the safety of manatees. Telephone conversation records from July 1, 2002 with NMFS indicate that there would be no effect to endangered or threatened species under their jurisdiction.

### **4.4 HARDGROUNDS**

Hardgrounds are not expected to be found within or adjacent to the dredging and disposal areas. Therefore, no impact is expected.

### **4.5 FISH AND WILDLIFE RESOURCES**

The benthic areas within the turning basin and berthing areas are subject to constant sedimentation. Dredging the project area would result in minor impacts to benthos. The dredged areas should quickly recolonize with benthic organisms from adjacent

dissolved oxygen levels should stabilize to 4 mg/l. Water temperature, pH, salinity, and conductivity should not change from present existing conditions. Once the dredged material is removed from dredging areas then leaching of PCBs and PAHs would not be present in the water and benthos in the area.

#### **4.12 HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE**

There will be a Spill Contingency Plan for HTRW. Removing the contaminated dredge material from the dredge site would stop the leaching of heavy metals, PCBs and PAHs into the water. Placing the dredged material in the CAD pits in the San José Lagoon with a 12 inch cap would ensure the contaminated material would not leach contaminants into the water. The current anoxic conditions found in the CAD pit will improve due to the raising of the levels of the pits to a more normal lagoon depth. Monitoring of the water around the CAD would ensure that the contaminated material is not leaching out.

#### **4.13 AIR QUALITY**

The short-term impact from emissions by construction equipment associated with the project would not significantly impact air quality. Air pollution standards of the Commonwealth and all Federal emission and performance laws and standards, including the U.S. Environmental Protection Agency's Ambient Air Quality Standards would be met.

#### **4.14 NOISE**

With the implementation of the proposed action there would be a temporary increase in the noise level during construction. All equipment and dredge/barges, boats, and tugs used on this project would be equipped with mufflers or other noise abatement devices. Due to the length of the pipeline, there would be several booster pumps positioned along the pipeline route. Any booster pumps would be located at least 300-feet from any residential development. To minimize the effects of noise, booster pumps would be fitted or equipped with mufflers or other noise control features.

#### **4.15 NAVIGATION**

Navigation safety would be improved by the proposed project activities.

#### **4.16 CUMULATIVE IMPACT**

Cumulative impact is the "impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR 1508.7). Maintenance dredging of the San Juan Harbor has provided a positive stimulus for adjacent regional economies resulting in growth and development. No adverse cumulative impacts are expected.

## **4.17 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES**

### **4.17.1 IRREVERSIBLE**

An irreversible commitment of resources is one in which the ability to use and/or enjoy the resource is lost forever. The energy and fuel used during construction would be an irreversible commitment of resources.

### **4.17.2 IRRETRIEVABLE**

An irretrievable commitment of resources is one in which, due to decisions to manage the resource for another purpose, opportunities to use or enjoy the resource as they presently exist are lost for a period of time. Benthic organisms within the dredging areas would be impacted during construction. However, these organisms are expected to quickly recolonize the disturbed areas.

## **4.18 UNAVOIDABLE ADVERSE ENVIRONMENTAL EFFECTS**

There may be short-term degradation of water quality due to turbidity caused by dredging and dredged material disposal operations.

## **4.19 INDIRECT EFFECTS**

An indirect effect of the proposed project would be using the dredged material to fill in one or more of the artificial depressions in San José Lagoon. Material used from this project and future dredging projects would fill the depressions to the original level of the lagoon bottom.

## **4.20 ENVIRONMENTAL COMMITMENTS**

The U.S. Army Corps of Engineers and contractors commit to avoiding, minimizing or mitigating for adverse effects during construction activities by including the following commitments in the contract specifications:

### **4.20.1 Protection of Fish and Wildlife Resources**

The Contractor shall keep construction activities under surveillance, management, and control to minimize interference with, disturbance to, and damage of fish and wildlife. Species that require specific attention along with measures for their protection shall be listed in the Contractor's Environmental Protection Plan prior to the beginning of construction operation.

### **4.20.2 Endangered Species Protection**

1. The Contractor shall instruct all personnel associated with the project of the potential presence of manatees and the need to avoid collisions with manatees.
2. All construction personnel shall be advised that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act of 1972, the Endangered Species Act of 1973, and the Florida Sanctuary Act of 1978. The Contractor may be held responsible for any manatee harmed, harassed, or killed as a result of construction activities.
3. Siltation barriers shall be installed and shall be made of material in which manatees cannot become entangled, shall be properly secured, and shall be monitored regularly to avoid manatee entrapment. Barriers shall not block manatee entry to or exit from essential habitat.
4. All vessels associated with the project shall operate at "no wake/idle" speeds at all times while in water where the draft of the vessel provides less than four feet clearance from the bottom and that vessels shall follow routes of deep water whenever possible.
5. If a manatee is sighted within 100 yards of the project area, all appropriate precautions shall be implemented by the Contractor to ensure protection of the manatee. These precautions shall include the operation of all moving equipment no closer than 50 feet of a manatee. If a manatee is closer than 50 feet to moving equipment or the project area, the equipment shall be shut down and all construction activities shall cease. Construction activities shall not resume until the manatee has departed the project area.
6. Collision and or injury to a manatee should be reported to the U.S. Fish and Wildlife Service.
7. Temporary signs concerning manatees shall be posted prior to and during construction/dredging activities. All signs are to be removed by the Contractor upon completion of the project.
8. If nighttime construction occurs, lights must be in place that illuminates a 100-foot radius around the construction site.

#### **4.21 COMPLIANCE WITH ENVIRONMENTAL REQUIREMENTS**

##### **4.21.1 NATIONAL ENVIRONMENTAL POLICY ACT OF 1969**

Environmental information on the project has been compiled and this Environmental Assessment has been prepared. The project is in compliance with the National Environmental Policy Act.

#### 4.21.2 ENDANGERED SPECIES ACT OF 1973

During the scoping process with National Marine Fisheries Service and the U.S. Fish and Wildlife Service, no endangered species or habitat was identified within the project area (refer to Appendix C, pertinent correspondence). The project will be in compliance with this act.

#### 4.21.3 FISH AND WILDLIFE COORDINATION ACT OF 1958

This project has been coordinated with the U.S. Fish and Wildlife Service (USFWS) during the scoping process. A Coordination Act Report (CAR) is not required for this project. This project is in full compliance with the Act.

#### 4.21.4 NATIONAL HISTORIC PRESERVATION ACT OF 1966 (INTER ALIA)

(PL 89-665, the Archeology and Historic Preservation Act (PL 93-291, and executive order 11593)  
This project has been coordinated with the State Historic Preservation Office during general scoping. The project is in full compliance at this stage.

#### 4.21.5 CLEAN WATER ACT OF 1972

All Federal and Commonwealth water quality standards will be met. A Section 404 (b) evaluation is included in the EA.

#### 4.21.6 CLEAN AIR ACT OF 1972

This project is being coordinated with the U.S. Environmental Protection Agency (EPA) and is in compliance with Section 309 of the Act. This EA will be forwarded to EPA for their review.

#### 4.21.7 COASTAL ZONE MANAGEMENT ACT OF 1972

A determination of consistency with the Coastal Zone Management Plan of Puerto Rico will be made and submitted to the Planning Board, in accordance with Puerto Rico Federal Consistency Regulations.

#### 4.21.8 FARMLAND PROTECTION POLICY ACT OF 1981

No prime or unique farmland would be impacted by implementation of this project. This act is not applicable.

#### 4.21.9 WILD AND SCENIC RIVER ACT OF 1968

No designated Wild and Scenic river reaches would be affected by project related activities. This act is not applicable.

#### 4.21.10 MARINE MAMMAL PROTECTION ACT OF 1972

Incorporation of the safe guards used to protect threatened or endangered species during dredging and disposal operations would also protect any marine mammals in the area, therefore, this project is in compliance with the Act.

#### 4.21.11 ESTUARY PROTECTION ACT OF 1968

The San Juan Bay, San José Lagoon and the interconnecting Martín Peña Channel are all part of the San Juan Bay Estuary (SJBE) system. The project was coordinated with the SJBE program office during general scoping. This EA will be forwarded to the SJBE program for their review.

#### 4.21.12 FEDERAL WATER PROJECT RECREATION ACT

There is no recreational development proposed for maintenance dredging or disposal. Therefore, this act does not apply.

#### 4.21.13 FISHERY CONSERVATION AND MANAGEMENT ACT OF 1976

The project has been coordinated with the National Marine Fisheries Service (NMFS) during general scoping. This EA will be coordinated with NMFS.

#### 4.21.14 COASTAL BARRIER RESOURCES ACT AND COASTAL BARRIER IMPROVEMENT ACT OF 1990

There are no designated coastal barrier resources in the project area that would be affected by this project. These acts are not applicable.

#### 4.21.15 RIVERS AND HARBORS ACT OF 1899

The proposed work would not obstruct navigable waters of the United States. The project is in full compliance.

#### 4.21.16 ANADROMOUS FISH CONSERVATION ACT

Anadromous fish species would not be affected. The project will be coordinated with the National Marine Fisheries Service and will be in compliance with the act.

#### 4.21.17 MIGRATORY BIRD TREATY ACT AND MIGRATORY BIRD CONSERVATION ACT

This project will be coordinated with the U.S. Fish and Wildlife Service and the Puerto Rico Department of Natural and Environmental Resources by circulation of this EA.



#### 4.21.18 MARINE PROTECTION, RESEARCH AND SANCTUARIES ACT

Early in the study, it was determined that materials proposed for dredging were not eligible for offshore ocean disposal. The disposal activities addressed in this EA will be evaluated under Section 404 of the Clean Water Act.

#### 4.21.19 MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

Coordination of this EA constitutes initial consultation with the National Marine Fisheries Service (NMFS) under provisions of this Act. Based on analysis discussed in this EA, the Corps has determined that the proposed action would not adversely affect the essential habitat of species managed under this Act.

#### 4.21.20 E.O. 11990, PROTECTION OF WETLANDS

No wetlands would be affected by project activities. This project is in compliance with the goals of this Executive Order.

#### 4.21.21 E.O. 11988, FLOOD PLAIN MANAGEMENT

The project is in the base flood plain (100-year flood) and has been evaluated in accordance with this Executive Order.

#### 4.21.22 E.O. 12898, ENVIRONMENTAL JUSTICE

The proposed action would not result in adverse health or environmental effects. Any impacts of this action would not be disproportionate toward any minority. The activity does not (a) exclude persons from participation in, (b) deny persons the benefits of, or (c) subject persons to discrimination because of their race, color, or national origin. The activity would not impact "subsistence consumption of fish and wildlife".

#### 4.21.23 E.O. 13089, CORAL REEF PROTECTION

No coral reef or coral reef organism would be impacted by this project.

#### 4.21.24 E.O. 13112, INVASIVE SPECIES

Invasive species would not be impacted by project activities. This E.O. is not applicable.

## **5 LIST OF PREPARERS**

### **5.1 PREPARERS**

<b>Preparer</b>	<b>Discipline</b>	<b>Role</b>
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Olice Carter	Environmental Engineer	HTRW & Water Quality
Thomas Birchett	Archaeologist	Historic Properties

### **5.2 REVIEWERS**

Ivan Acosta, Team Leader, Environmental Branch, Special Projects Section.

## **6 PUBLIC INVOLVEMENT**

### **6.1 SCOPING**

A scoping letter dated June 4, 2002 was coordinated for this action. Scoping letters were mailed to appropriate government agencies, interested parties and non-governmental organizations.

### **6.2 AGENCY COORDINATION**

Any agency coordination letters can be found in Appendix C.

### **6.3 LIST OF RECIPIENTS**

A complete mailing list of the parties receiving a copy of the scoping letter is included with the letter in Appendix C.

### **6.4 COMMENTS RECEIVED AND RESPONSE**

Copies of comments received during the scoping process are in Appendix C.

## REFERENCES

- Conde-Costas, Carlos. 1987. Laguna San Jose Bathymetric and Water Quality Survey, Puerto Rico: U.S. Geological Survey Administrative Report. 10 p.
- Cushing, Bradford S. 1998. Falling Short of the Mark, The Limits of Dredging as a Feasible Technology for Contaminated Sediment Removal. *Water Environment and Technology*, June 1998, p. 61-66.
- Palermo, Michael R. 1997. Contained Aquatic Disposal of Contaminated Sediments in Subaqueous Borrow Pits. Technical Report, U.S. Army Corps of Engineers Experiment Station, Vicksburg, MS.
- San Juan Bay Estuary Program. 2000. Comprehensive Conservation and Management Plan for the San Juan Bay Estuary. U.S. Environmental Protection Agency 420 pp.
- U.S. Army Corps of Engineers. 2001. Project Design Report and Environmental Impact Statement for the Dredging of Cano Martin Pena. 55 p. plus appendices, plates.
- U.S. Army Corps of Engineers. 1994. General Reevaluation Report and Environmental Assessment for San Juan harbor. 50 p. plus appendices, plates.
- U.S. Fish and Wildlife Service. 1993. Fish and Wildlife Coordination Act Report for San Juan Harbor. 16 pp.

## **APPENDIX A - SECTION 404(B) EVALUATION**

**SECTION 404(b) EVALUATION**  
**MAINTENANCE DREDGING**  
**GRAVING DOCK TURNING BASIN AND**  
**BERTHS 15 & 16**  
**SAN JUAN HARBOR, PUERTO RICO**

**I. Project Description**

a. Location. The Graving Dock Turning Basin and Berths 15 & 16 are located northeast of the Graving Dock Channel in San Juan Harbor, Puerto Rico.

b. General Description. The proposed plan calls for dredging and deepening the Graving Dock Turning Basin and adjacent Berths 15 & 16. The dredging method would be hydraulic excavation and pipeline pumping, via the Martín Peña Channel, into one or more artificial depressions within the San José Lagoon. A maximum 50' wide corridor would be needed for floating pipeline placement through the Martín Peña Channel.

c. Authority and Purpose. Work is authorized under PL-99-662, November 1986 and re-authorized in 1996 under PL-104-303.

d. General Description of Dredged or Fill Material.

(1) General Characteristics of Material. The material to be removed consists of sandy, clayey silts with traces of shell. Bioassay testing results indicate the sediment within the proposed dredging areas show traces of contaminants.

(2) Quantity of Material. 200,000 to 300,000 cubic yards.

(3) Source of Material. Material would be removed from the turning basin and berths 15 & 16.

e. Description of the proposed Discharge Site.

(1) Location. One of two artificial depressions located in the San José Lagoon.

(2) Size. Disposal Area #1 at -6 ft. elevation has the capacity to hold approximately 358,997 cubic yards of material. Disposal Area #2 at -12 ft. has the capacity to hold approximately 497,978 cubic yards of material.

(3) Type of Site. Artificial depression.

(4) Type of Habitat. Softbottom coastal lagoon.

(5) Timing and Duration of Discharge. Models performed by WES show different rates of duration of discharged dredged material. With the proposed 12" pipeline it is recommended that the operating times be 8-hours per day during the first two weeks to promote efficient clarification during the initial part of the filling period. It is estimated that it would take 6-months to 1-year to complete project.

f. Description of Disposal Method. Dredged material would be hydraulically pumped to the disposal site

## II. Factual Determinations

### a. Physical Substrate Determinations.

(1) Substrate Elevation and Slope. For disposal area #1, elevation changes range from -6 ft. to -22 ft. For disposal area #2, elevation changes range from -12 ft. to -30 ft.

(2) Sediment Type. The material to be removed consists of sandy, clayey silts with traces of shell. Bioassay testing results indicate the sediment within the proposed dredging areas show traces of contaminants.

(3) Dredge/Fill Material Movement. Using the 12" pipeline the average velocity of the dredge material would be 15 feet per second.

(4) Physical Effects on Benthos. Dredging and disposal activities would result in minor impacts to benthos. The areas should quickly recolonize with benthic organisms from adjacent similar habitats.

### b. Water Circulation, Fluctuation and Salinity Determination.

(1) Water Column Effects. There would be a temporary increase in water turbidity during dredging and deposition of the dredged due to the resuspension of fine sediments in the water column.

(2) Current Patterns and Circulation. For both the dredge site and disposal site the areas of concern are located inside a harbor for the dredge site and inside a lagoon for the disposal site. Both sites show minimal water patterns and circulation is not a factor due to non access to ocean wave patterns due to the connecting channel being restricted with debris and silt.

(3) Normal Water Level Fluctuations and Salinity Gradients. Salinity ranges were from 32.2 to 38.2 ppt and the range for conductivity was 47.5 to 57.4 mmhos. Minimal water level fluctuations inside harbor only due to daily tides.

c. Suspended Particulate/Turbidity Determinations. There would be a temporary increase in water turbidity during dredging and deposition of the dredged material due to the resuspension of fine sediments in the water column.

(1) Expected Changes in Suspended Particulates and Turbidity Levels in the Vicinity of the Disposal Site. There would be a temporary increase in water turbidity during deposition of the dredged material in the San José Lagoon due to resuspension of fine sediments. The conditions are expected to return to normal after construction.

(2) Effects on the Chemical and Physical Properties of the Water Column.

(a) Light Penetration. There would be a temporary increase in suspended fine particles in the water column, and temporary decreases in light penetration.

(b) Dissolved Oxygen. The fine particulates from the harbor bottom include organic matter, and dissolved oxygen concentrations may temporarily be lowered.

(c) Toxic Metals, Organics, and Pathogens. During the period May 4-16, 1999, 37 sample stations in the San Juan Harbor, Puerto Rico, were sampled as part of the 1999 Evaluation of Dredged Material for Ocean Disposal. Heavy metals were present in the sediments sampled at the Graving Docks Turning Basin at low to moderate levels. Pesticides and PCBs were either below detection or present at low levels. Analytical results for sediments can be found in Section 3.8 of the EA.

(d) Aesthetics. No effect.

(3) Effects on Biota.

(a) Primary Productivity and Photosynthesis. There would be no long-term effect on the bay or lagoon productivity as a result of the construction activities.

(b) Suspension/Filter Feeders. There would be no long-term adverse impact to suspension/filter feeders.

(c) Sight Feeders. There would be no long-term adverse impact to sight feeders.



d. Contaminant Determinations.

e. Aquatic Ecosystem and Organism Determinations.

- (1) Effects on Plankton. None expected.
- (2) Effects on Benthos. None expected.
- (3) Effects on Nekton. None expected.
- (4) Effects on the Aquatic Food Web. None expected.
- (5) Effects on Special Aquatic Sites.
  - (a) Hardground and Coral Reef Communities. None expected.
  - (b) Sanctuaries and Refuges. None.
  - (c) Wetlands. None expected.
  - (d) Mud Flats. None expected.
  - (e) Vegetated Shallows. None expected.
  - (f) Riffle and Pool Complexes. None.
- (6) Endangered and Threatened Species. There would be no impacts expected on any threatened or endangered species.
- (7) Other Wildlife. None expected.
- (8) Actions to Minimize Impacts. There will be a Spill Contingency Plan for HTRW. Removing the contaminated dredge material from the dredge site would stop the leaching of heavy metals, PCBs and PAHs into the water. Placing the dredged material in the CAD pits in the San José Lagoon with a 12 inch cap would ensure the contaminated material would not leach contaminants into the water. The current anoxic conditions found in the CAD pit will improve due to the raising of the levels of the pits to a more normal lagoon depth. Monitoring of the water around the CAD would ensure that the contaminated material is not leaching out.

f. Proposed Disposal Site Determinations.

- (1) Mixing Zone Determination. Not applicable.

(2) Determination of Compliance with Applicable Water Quality Standards. The discharge to fill the artificial depressions will comply with applicable standards.

(3) Potential Effects on Human Use Characteristics.

(a) Municipal and Private Water Supplies. No effect.

(b) Recreational and Commercial Fisheries. Possible temporary impact on recreational fishing in the immediate area of construction.

(c) Water Related Recreation. Possible temporary impact on water related recreation in the immediate area of construction.

(d) Aesthetics. Temporary reduction in aesthetics during construction due to the presence of dredge equipment.

(e) Parks, National and Historic Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves. No effect.

g. Determination of Cumulative Effects on the Aquatic Ecosystem. No adverse cumulative impacts are expected.

h. Determination of Secondary Effects on the Aquatic Ecosystem. There may be short-term degradation of water quality due to turbidity caused by dredging and disposal operations. This may have a temporary impact to the aquatic ecosystem.

III. Findings of Compliance or Non-compliance with the Restrictions on Discharge.

a. No significant adaptations of the guidelines were made relative to this evaluation.

b. No practicable alternative exists which meets the study objectives that does not involve discharge of fill into waters of the United States.

c. After consideration of disposal site dilution and dispersion, the discharge of fill materials will not cause or contribute to, violations of any applicable State water quality standards for Class III waters. The discharge operation will not violate the Toxic Effluent Standards of Section 307 of the Clean Water Act.

d. The San Juan Harbor Graving Docks Turning Basin and Berths 15 and 16 maintenance dredging will not jeopardize the continued existence of any species listed as threatened or endangered or result in the likelihood of destruction or adverse modification of any critical habitat as specified by the Endangered Species Act of 1973, as amended.

e. The placement of fill material will not result in significant adverse effects on human health and welfare, including municipal and private water supplies, recreational and commercial fishing, plankton, fish, shellfish, wildlife, and special aquatic sites. The life stages of aquatic species and other wildlife will not be adversely affected. Significant adverse effects on aquatic ecosystem diversity, productivity and stability, and recreational, aesthetic, and economic values will not occur.

f. On the basis of the guidelines, the proposed disposal site for the discharge of dredged material is specified as complying with the requirements of these guidelines.

## **APPENDIX B - COASTAL ZONE MANAGEMENT CONSISTENCY**

## **APPENDIX C - PERTINENT CORRESPONDENCE**

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